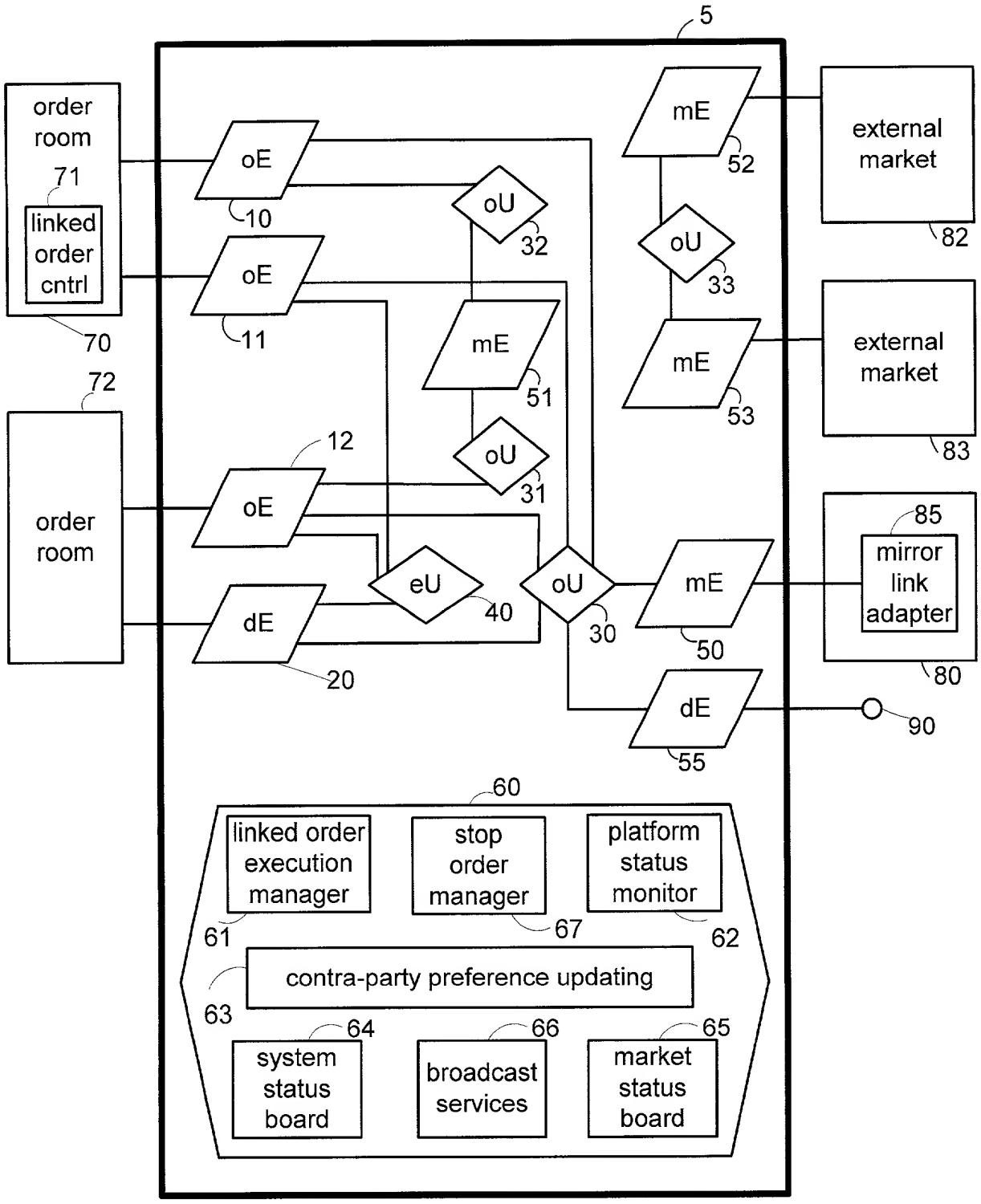
5
order room
71
linked order cntrl
70
oE
10
oE
11
oU
32
mE
51
oU
31
12
oE
order room
72
dE
20
eU
40
oU
30
mE
52
oU
33
mE
53
external market
82
external market
83
85
mirror link adapter
80
mE
50
dE
55
90
60
linked order execution manager
61
stop order manager
67
platform status monitor
62
contra-party preference updating
63
64
system status board
66
broadcast services
65
market status board

FIG. 1

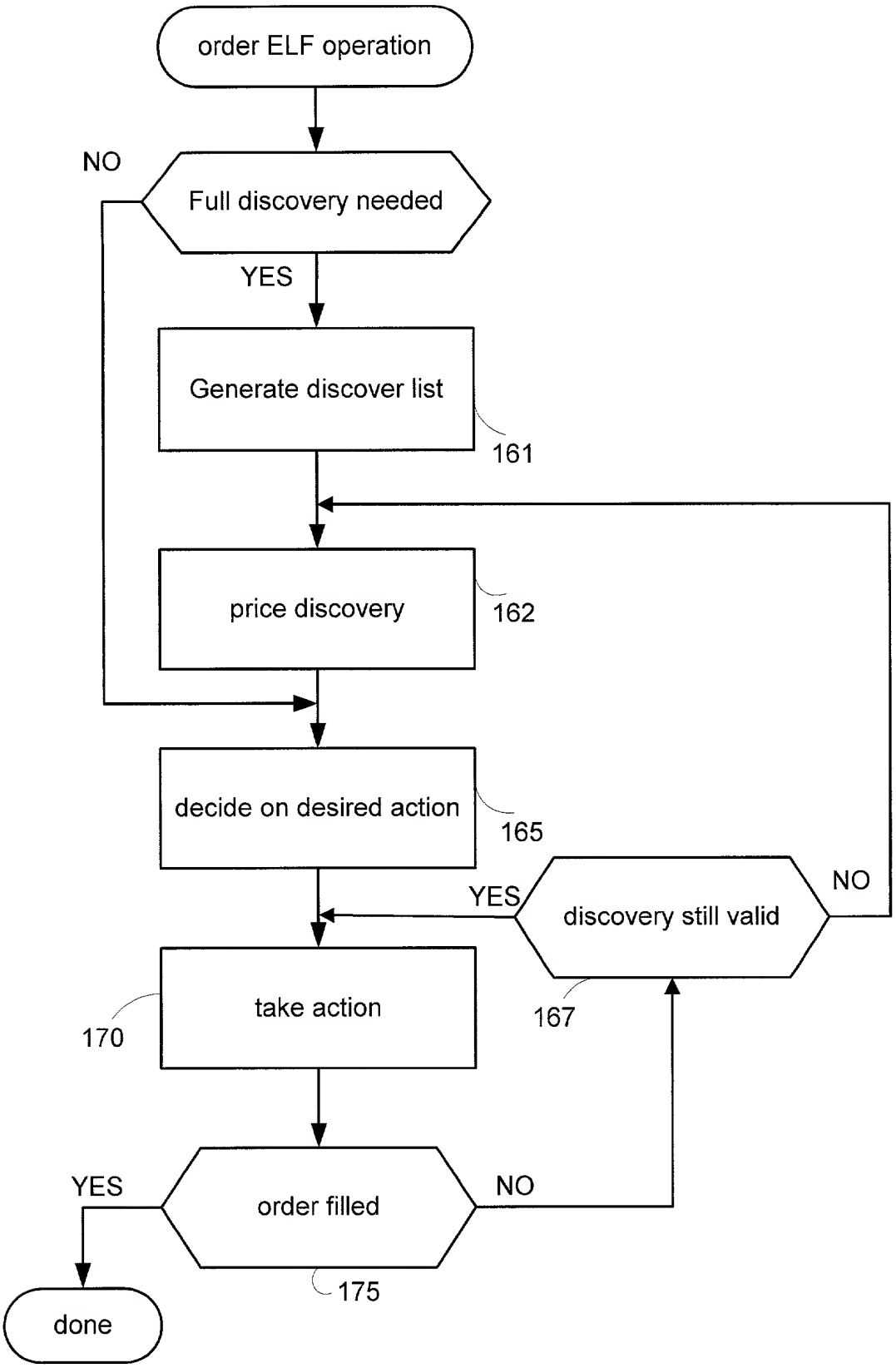
order ELF operation
NO
Full discovery needed
YES
Generate discover list
161
price discovery
162
decide on desired action
165
YES
discovery still valid
NO
167
take action
170
YES
order filled
NO
175
done

FIG. 2

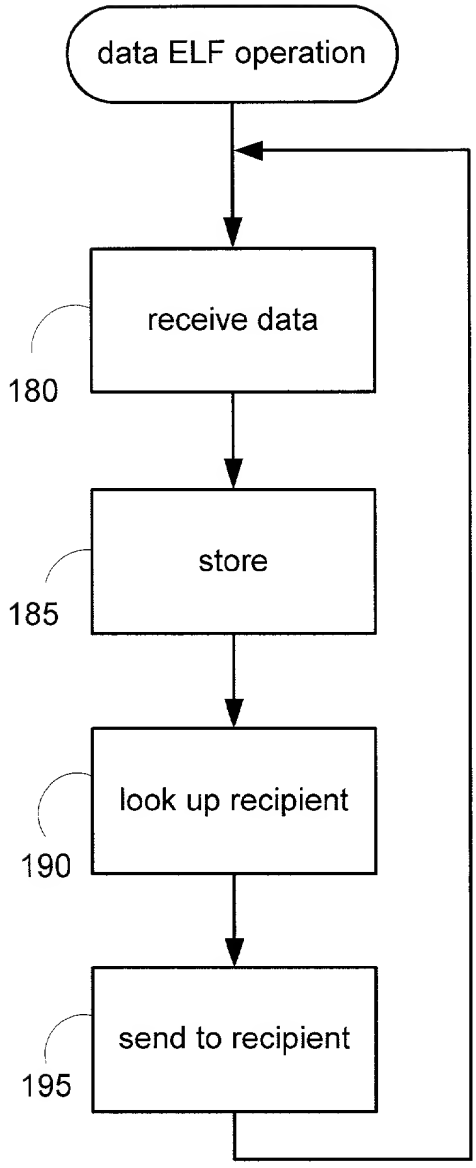
data ELF operation
receive data
180
store
185
look up recipient
190
send to recipient
195

FIG. 3

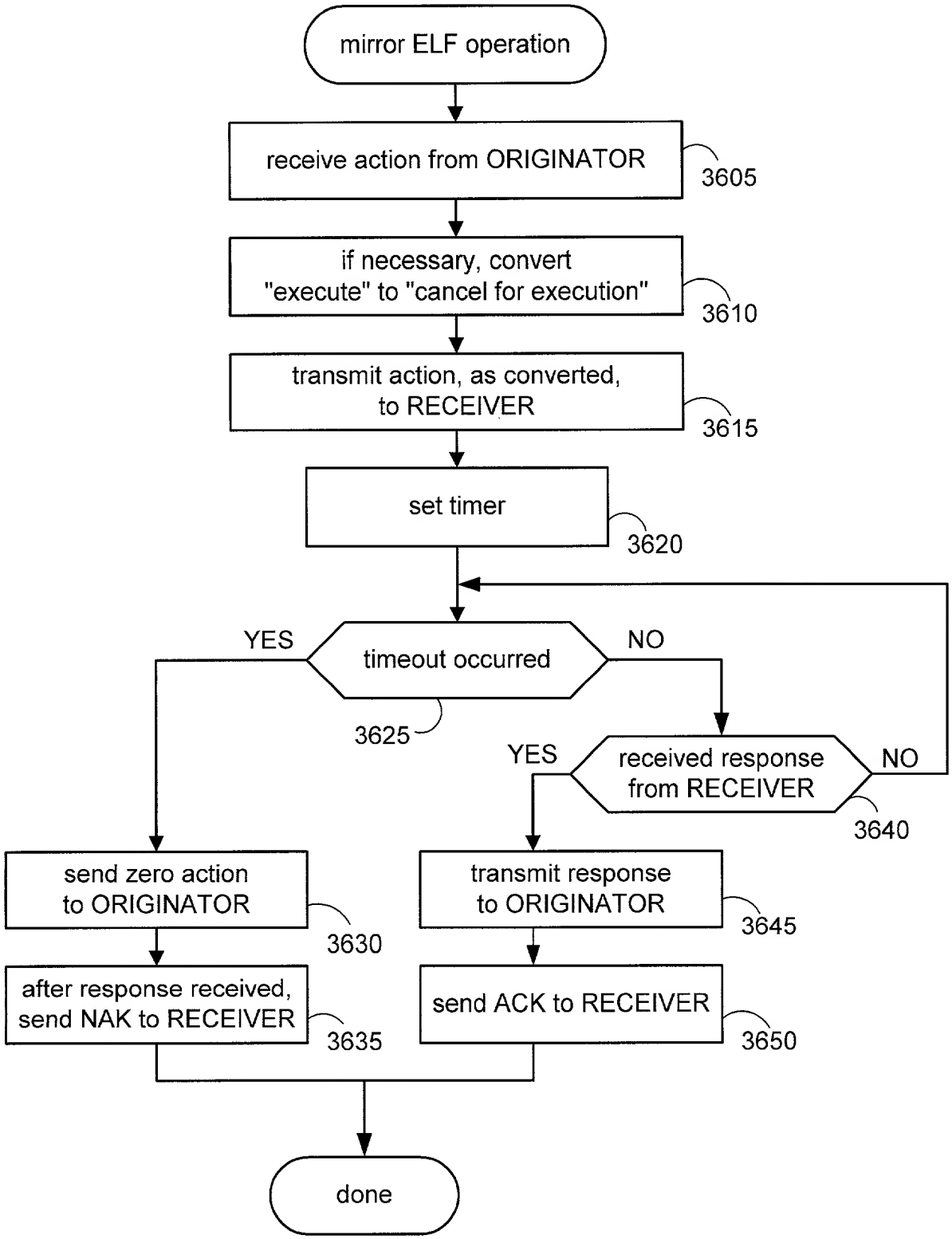
mirror ELF operation
receive action from ORIGINATOR
3605
if necessary, convert "execute" to "cancel for execution"
3610
transmit action, as converted, to RECEIVER
3615
set timer
3620
YES
timeout occurred
NO
3625
YES
received response from RECEIVER
NO
3640
send zero action to ORIGINATOR
3630
transmit response to ORIGINATOR
3645
after response received, send NAK to RECEIVER
3635
send ACK to RECEIVER
3650
done

FIG. 4

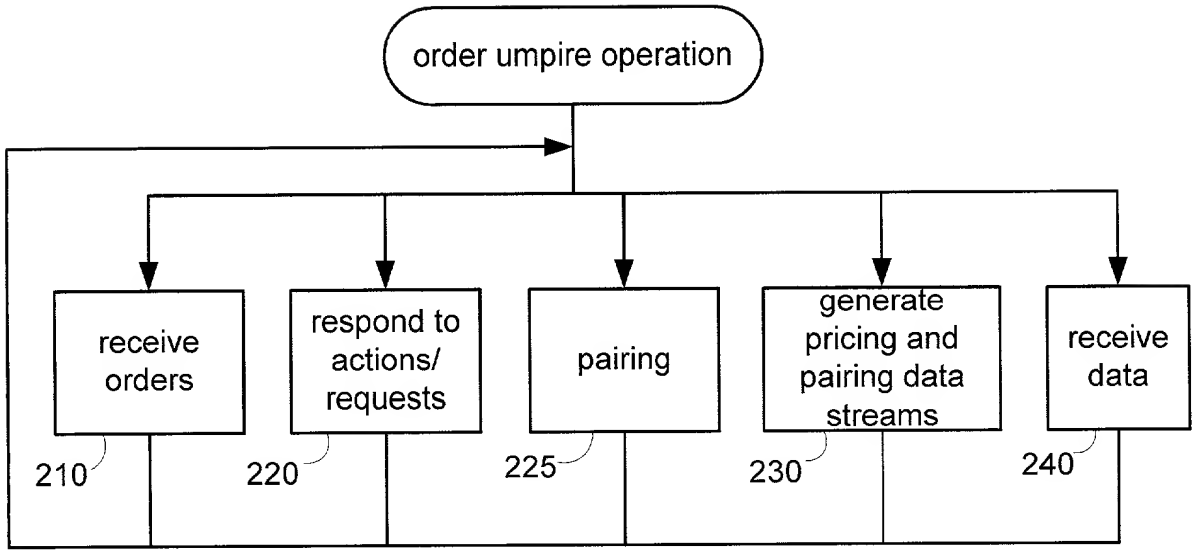
order umpire operation
receive orders
respond to actions/ requests
pairing
generate pricing and pairing data streams
receive data
210
220
225
230
240

FIG. 5

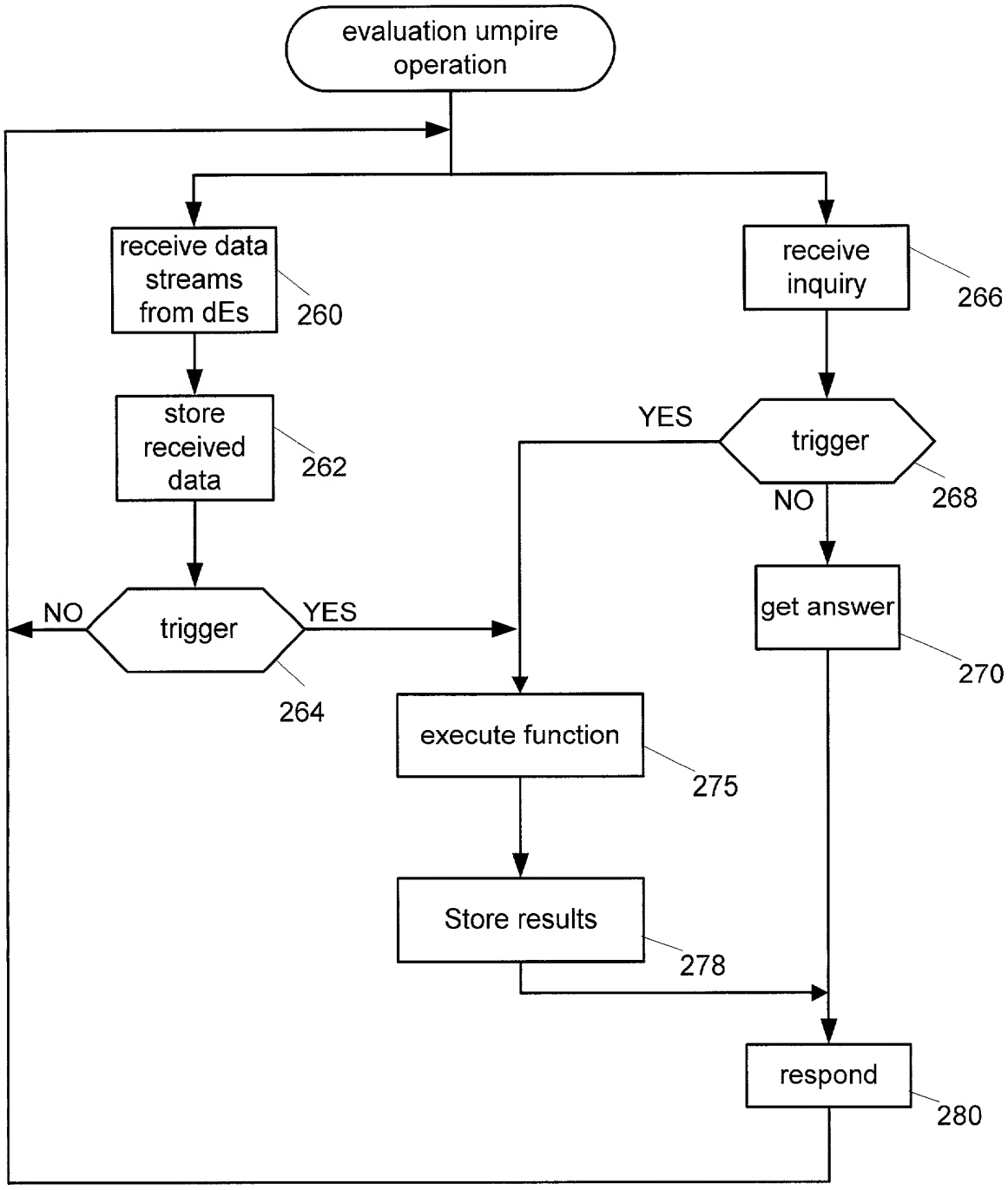
evaluation umpire operation
receive data streams from dEs
260
store received data
262
NO
trigger
YES
264
receive inquiry
266
YES
trigger
NO
268
get answer
270
execute function
275
Store results
278
respond
280

FIG. 6

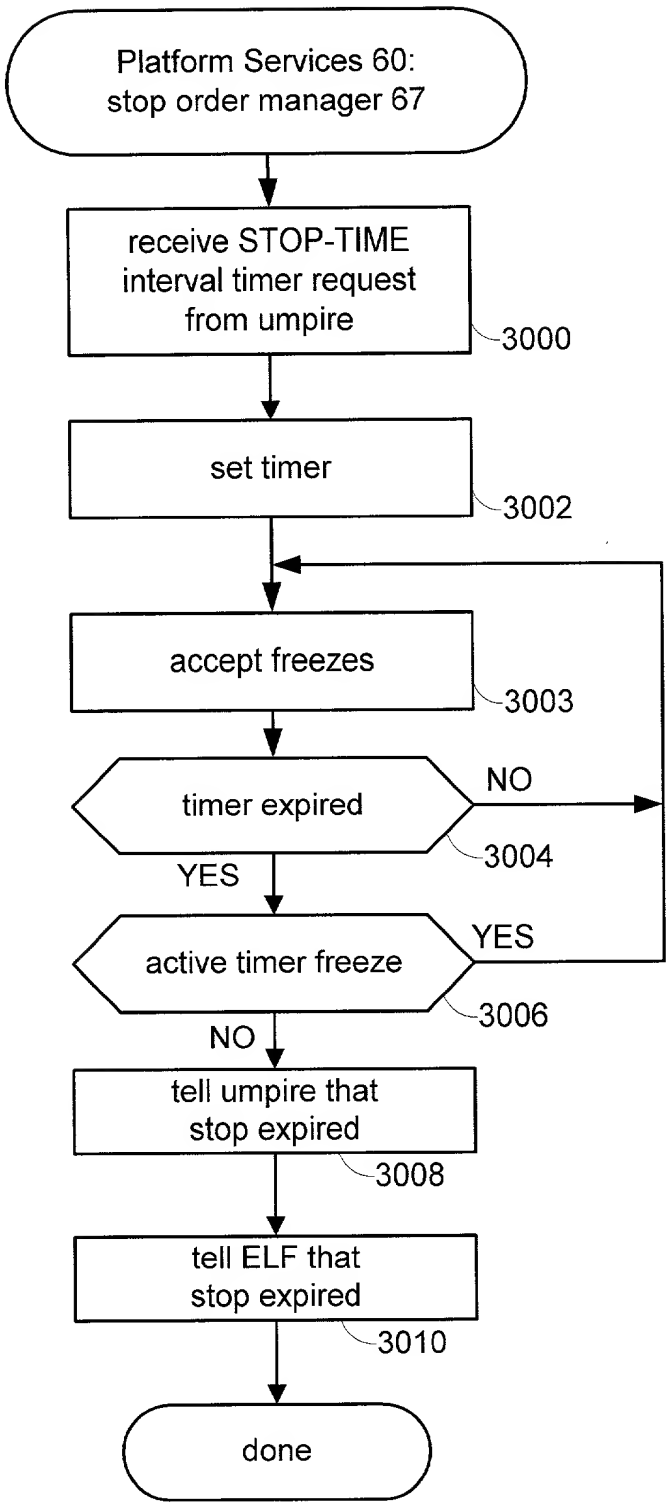
Platform Services 60:
stop order manager 67
receive STOP-TIME
interval timer request
from umpire
3000
set timer
3002
accept freezes
3003
timer expired
NO
3004
YES
active timer freeze
YES
3006
NO
tell umpire that
stop expired
3008
tell ELF that
stop expired
3010
done

FIG. 7

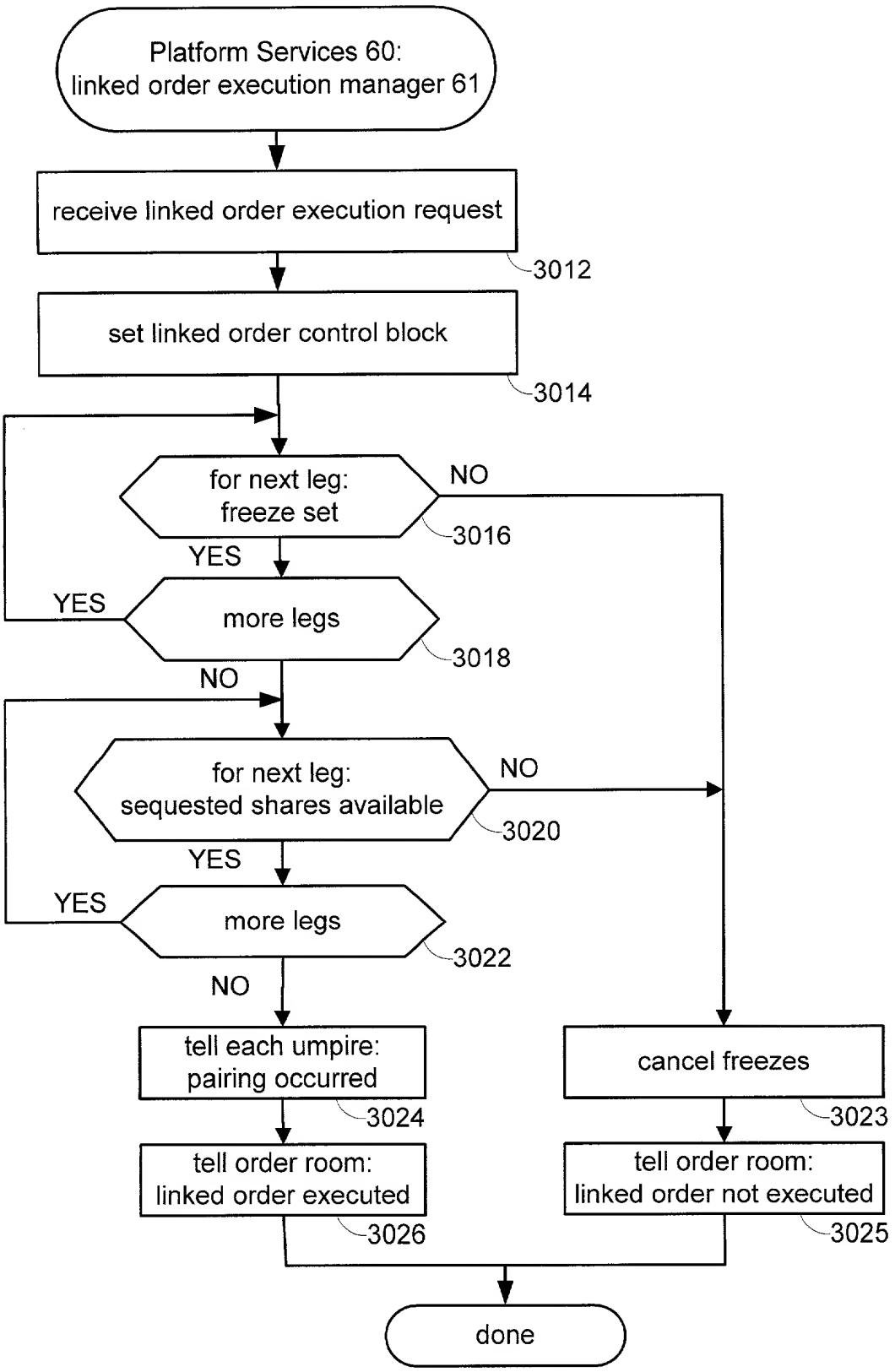
Platform Services 60:
linked order execution manager 61
receive linked order execution request
3012
set linked order control block
3014
for next leg:
freeze set
NO
3016
YES
YES
more legs
3018
NO
for next leg:
sequested shares available
NO
3020
YES
YES
more legs
3022
NO
tell each umpire:
pairing occurred
3024
tell order room:
linked order executed
3026
cancel freezes
3023
tell order room:
linked order not executed
3025
done

FIG. 8

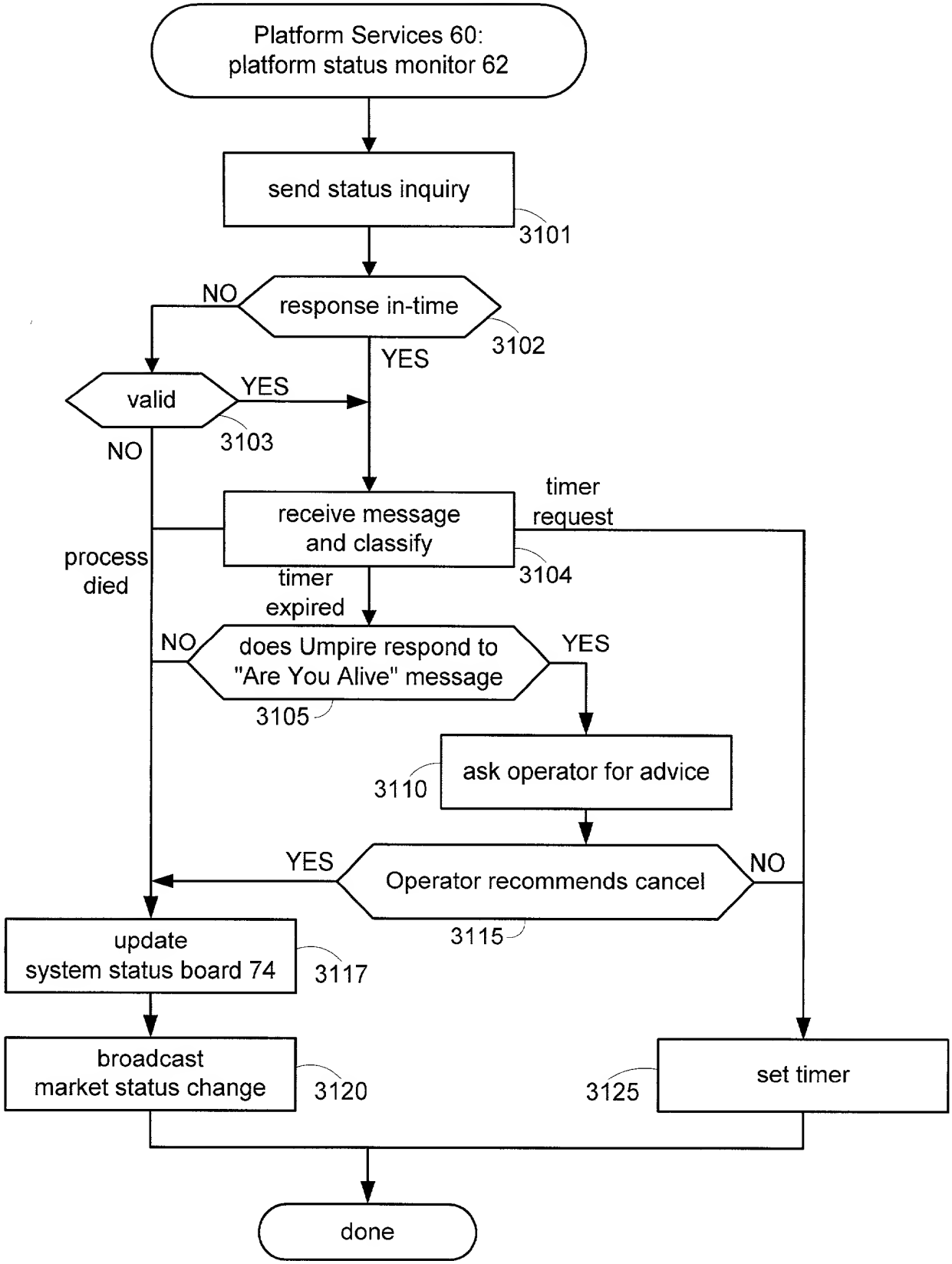
Platform Services 60:
platform status monitor 62
send status inquiry
3101
response in-time
NO
YES
3102
valid
YES
NO
3103
receive message
and classify
timer
request
process
died
3104
timer
expired
does Umpire respond to
"Are You Alive" message
NO
YES
3105
ask operator for advice
3110
Operator recommends cancel
YES
NO
3115
update
system status board 74
3117
broadcast
market status change
3120
set timer
3125
done

FIG. 9

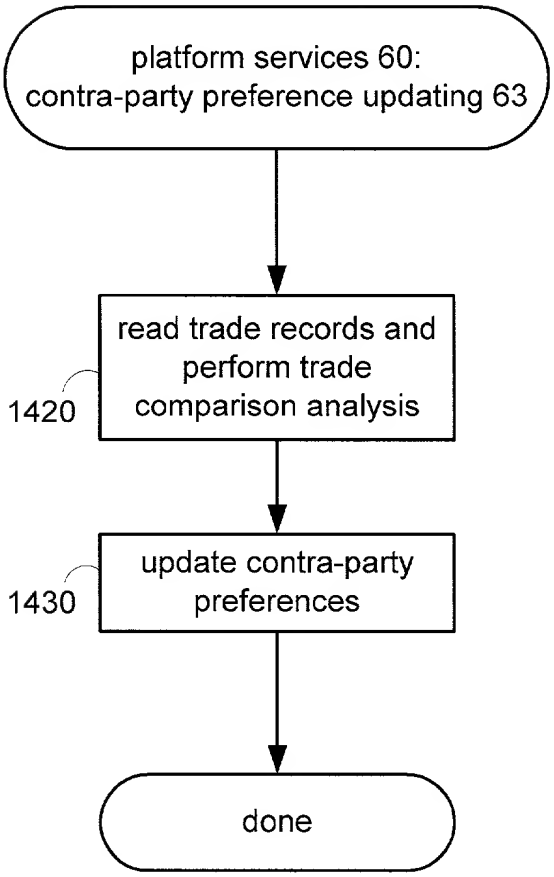
platform services 60:
contra-party preference updating 63
read trade records and perform trade comparison analysis
1420
update contra-party preferences
1430
done

FIG. 10

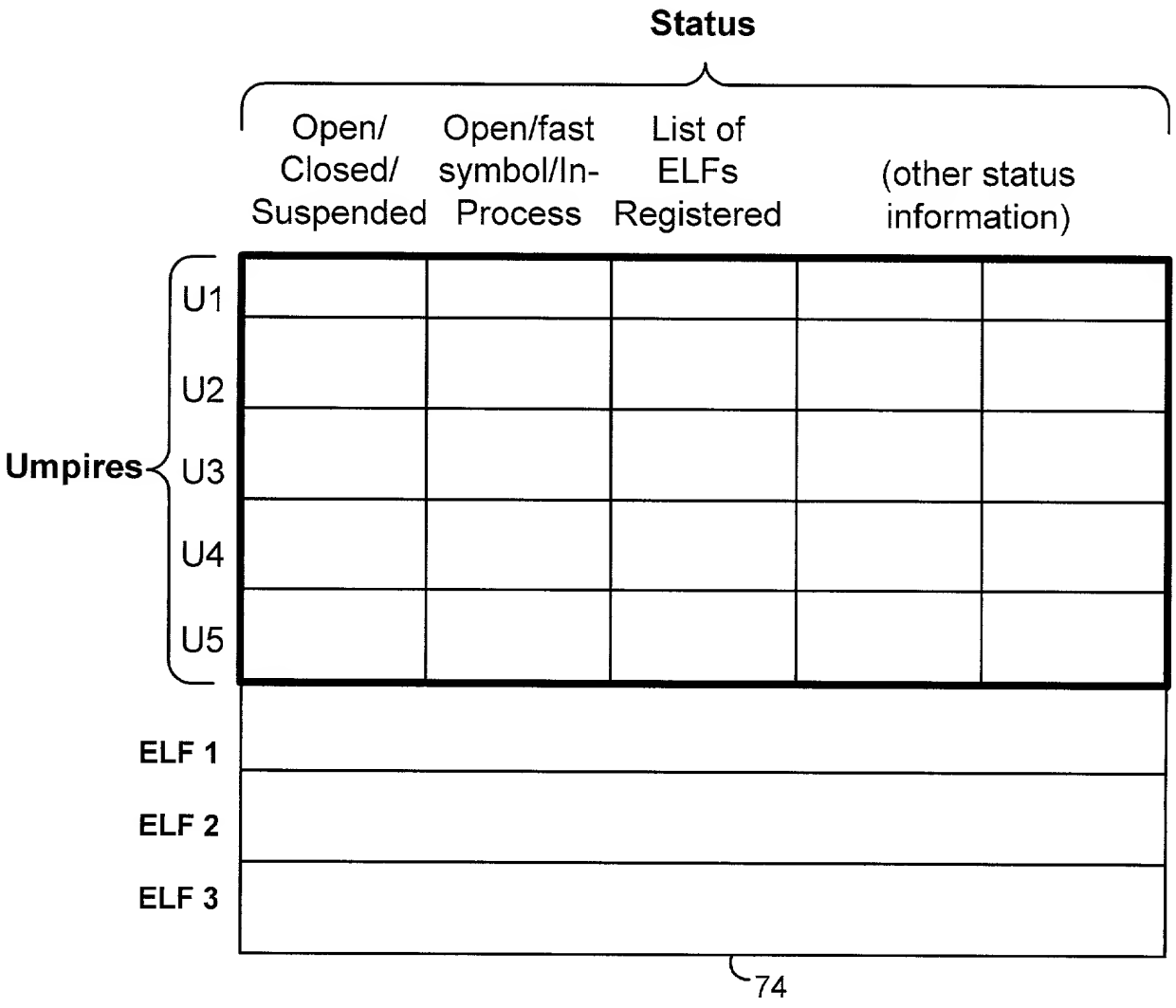
Status
Open/ Closed/ Suspended
Open/fast symbol/In-Process
List of ELFs Registered
(other status information)
Umpires
U1
U2
U3
U4
U5
ELF 1
ELF 2
ELF 3
74

FIG. 11

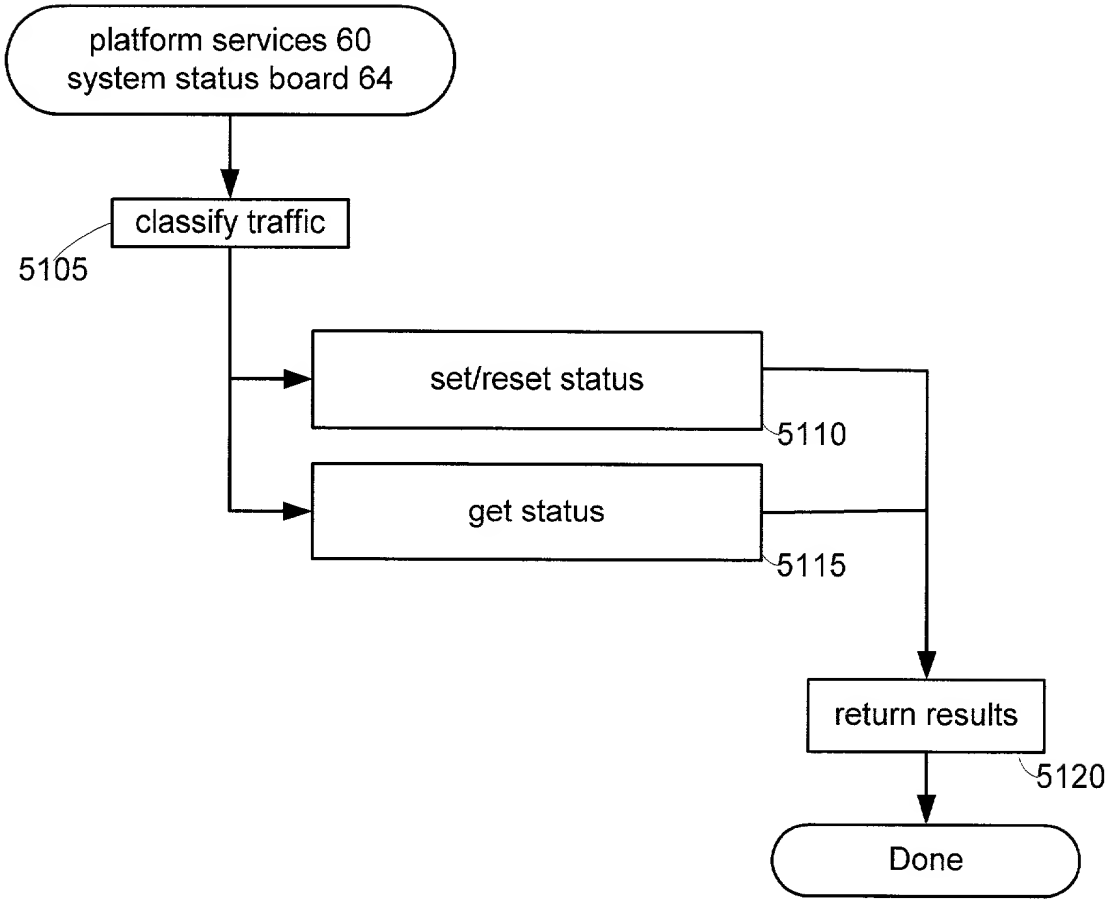
platform services 60
system status board 64
classify traffic
5105
set/reset status
5110
get status
5115
return results
5120
Done

FIG. 12

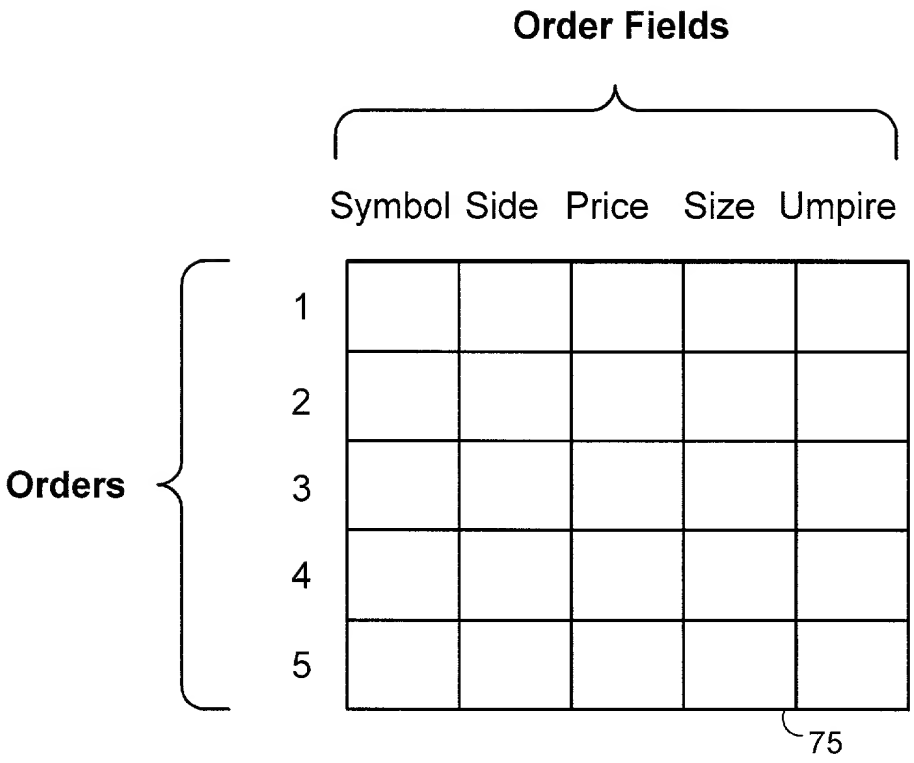

FIG. 13

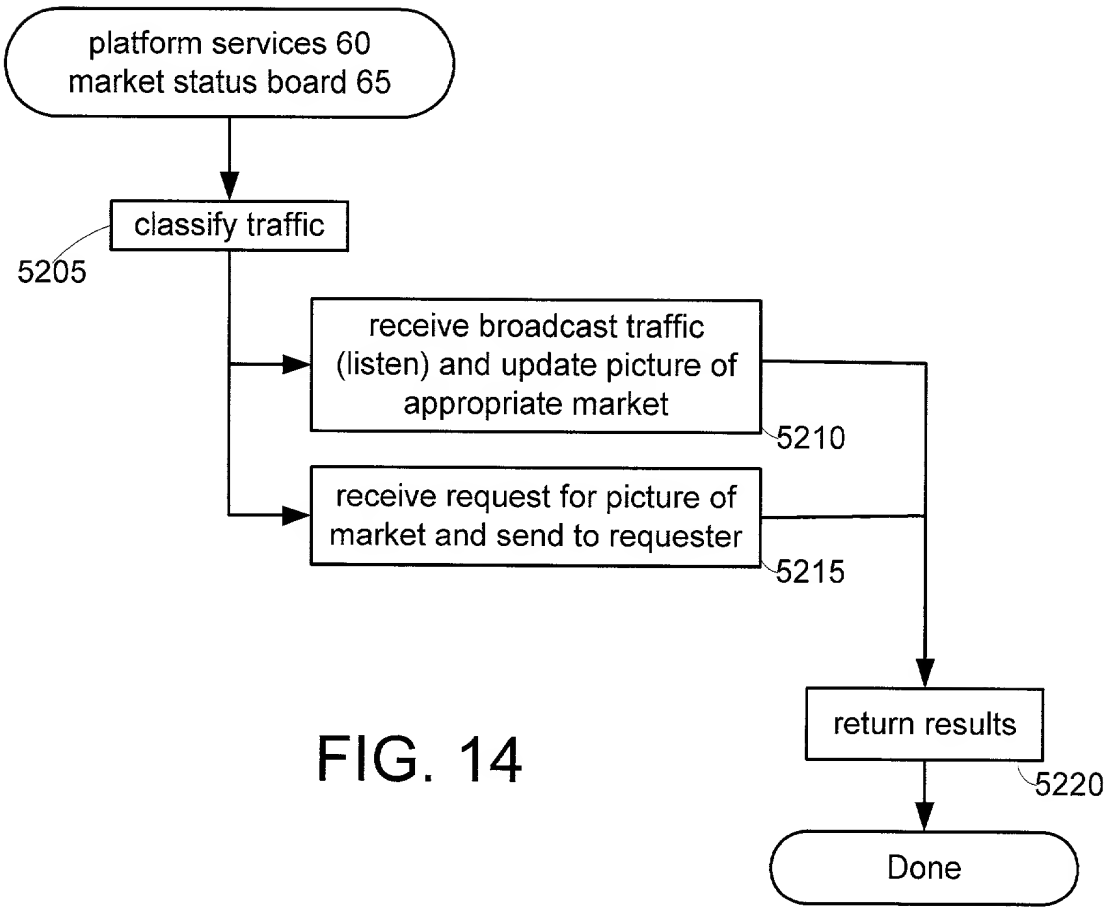
platform services 60
market status board 65
classify traffic
5205
receive broadcast traffic (listen) and update picture of appropriate market
5210
receive request for picture of market and send to requester
5215
return results
5220
Done

FIG. 14

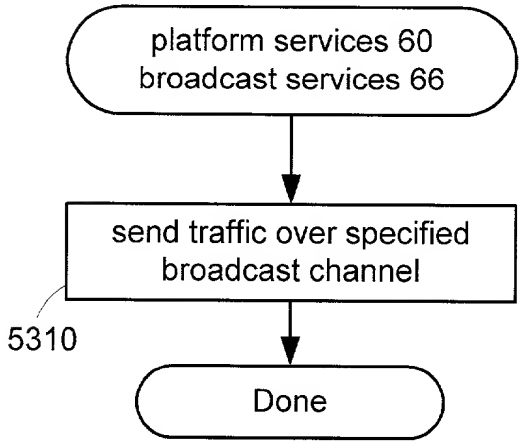
platform services 60
broadcast services 66
send traffic over specified broadcast channel
5310
Done

FIG. 15

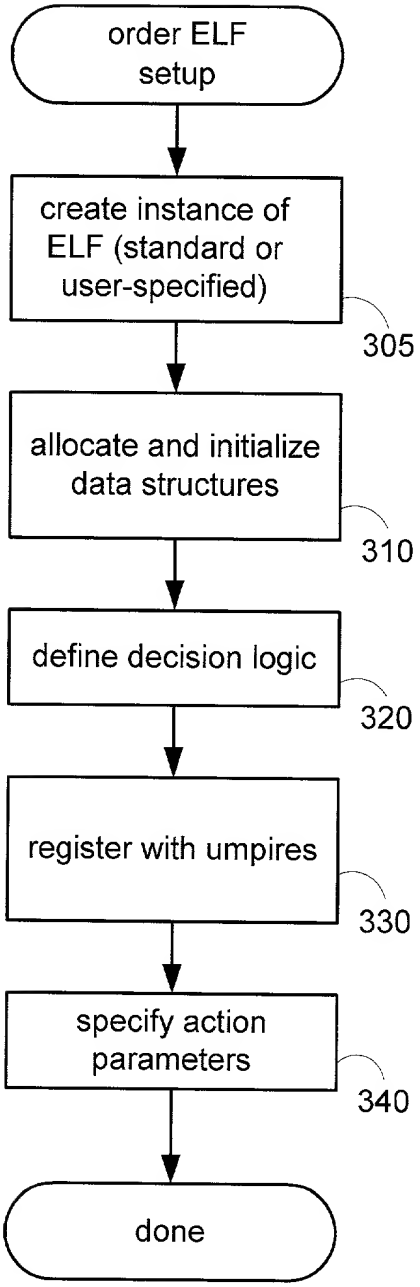
order ELF setup
create instance of ELF (standard or user-specified)
305
allocate and initialize data structures
310
define decision logic
320
register with umpires
330
specify action parameters
340
done

FIG. 16

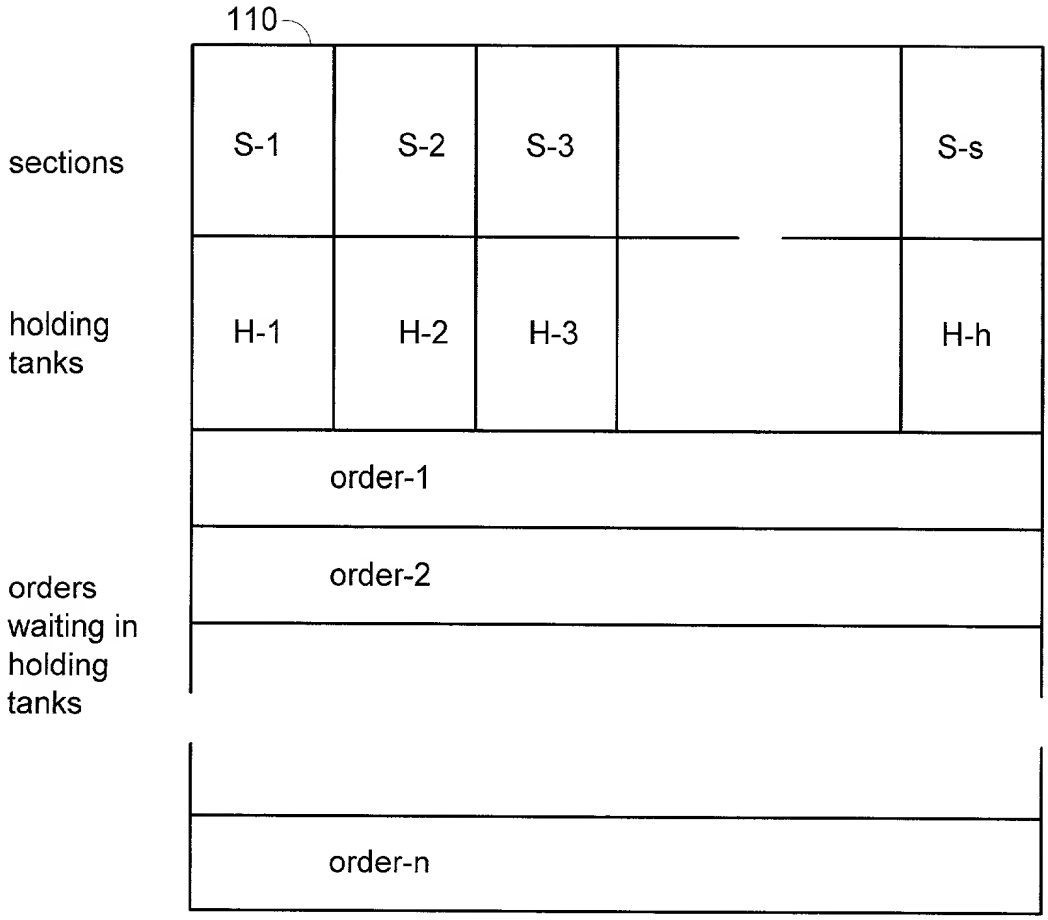
110
sections
S-1
S-2
S-3
S-s
holding tanks
H-1
H-2
H-3
H-h
order-1
order-2
orders waiting in holding tanks
order-n

FIG. 17

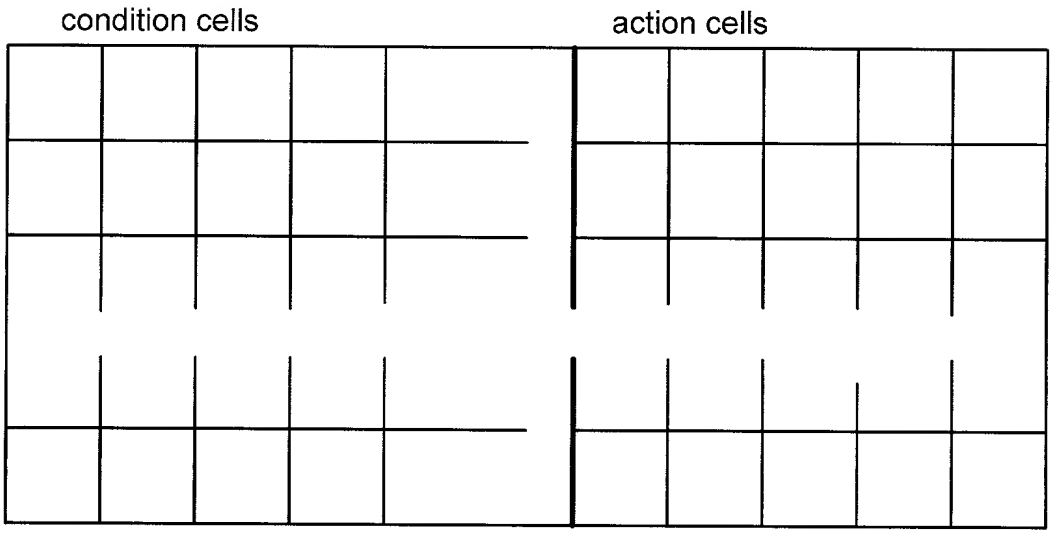
condition cells
action cells

FIG. 18

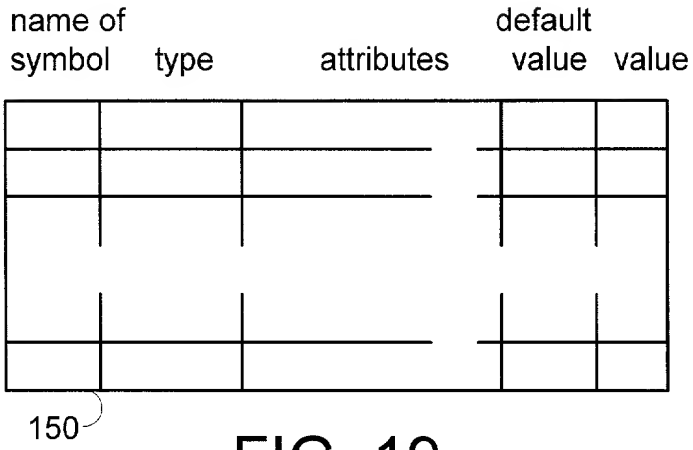
name of symbol
type
attributes
default value
value
150

FIG. 19

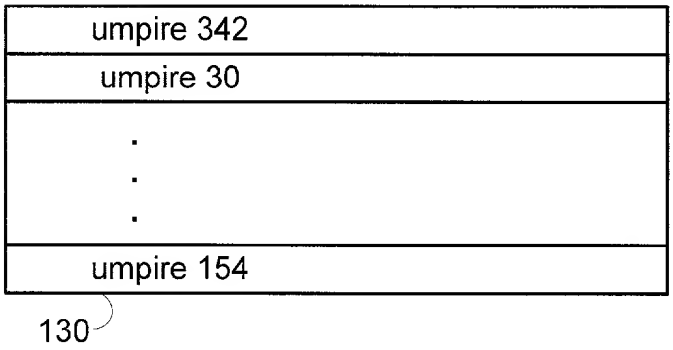
umpire 342
umpire 30
umpire 154
130

FIG. 20

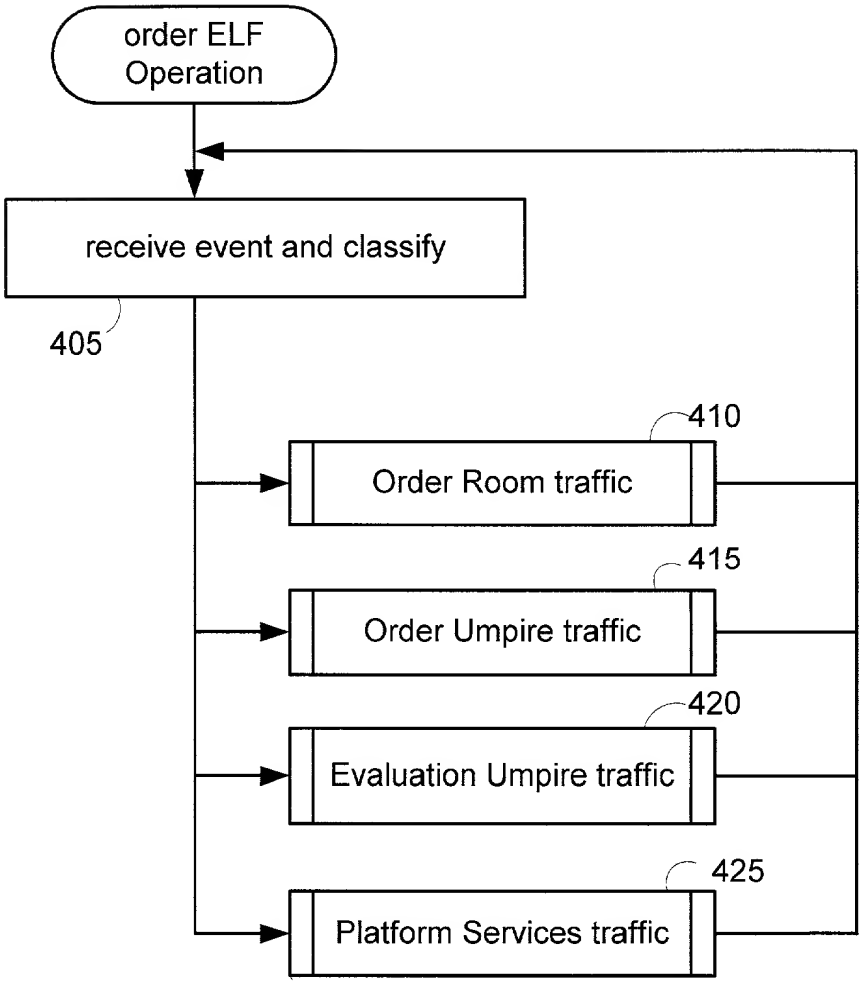
order ELF Operation
receive event and classify
405
410
Order Room traffic
415
Order Umpire traffic
420
Evaluation Umpire traffic
425
Platform Services traffic

FIG. 21

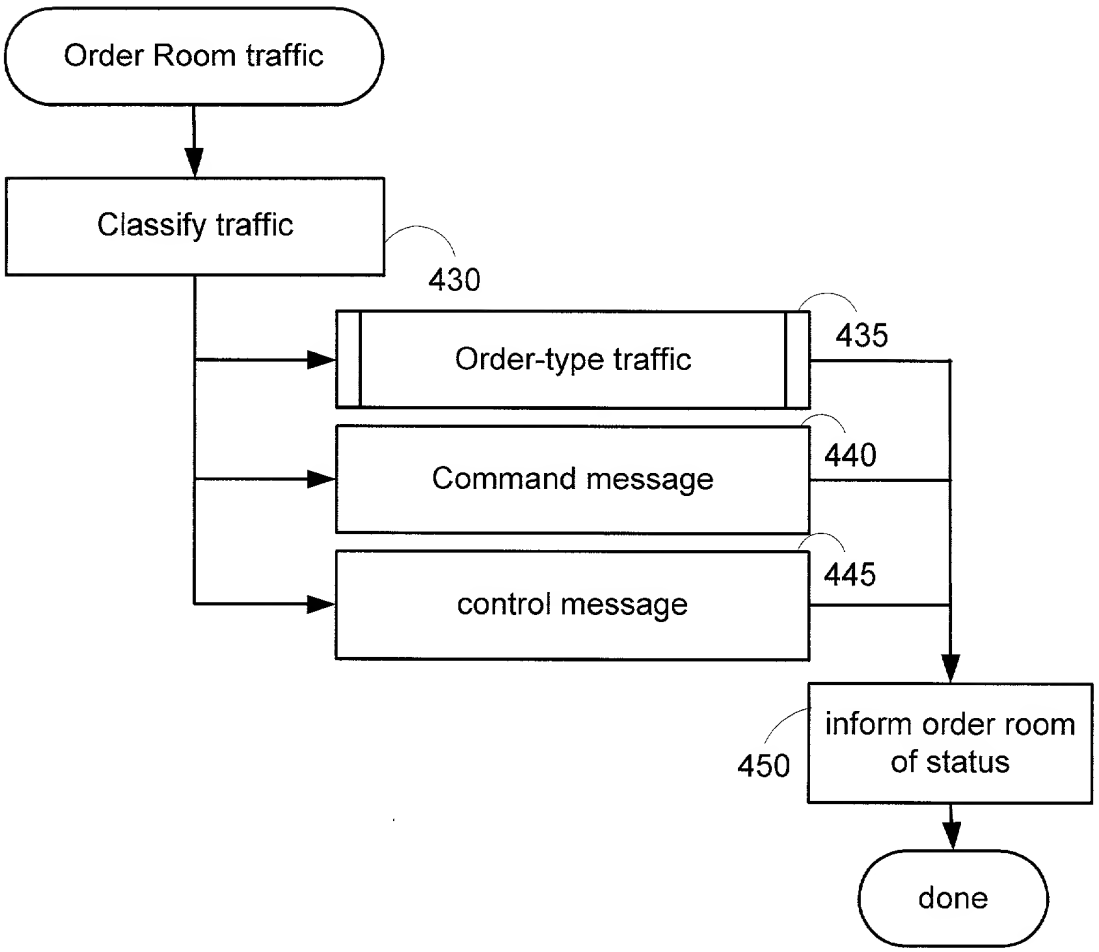
Order Room traffic
Classify traffic
430
Order-type traffic
435
Command message
440
control message
445
inform order room of status
450
done

FIG. 22

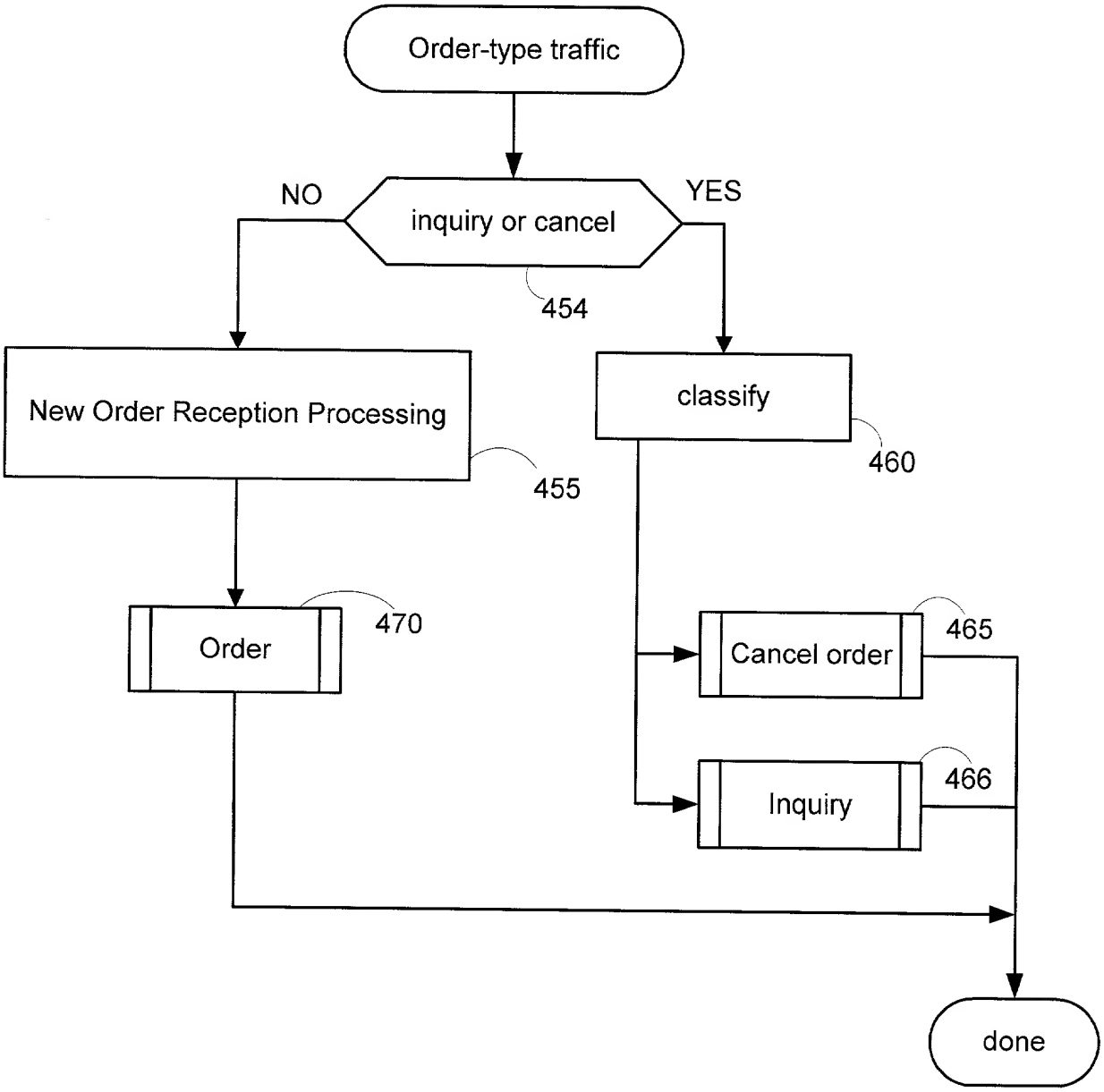
Order-type traffic
NO
inquiry or cancel
YES
454
New Order Reception Processing
455
classify
460
Order
470
Cancel order
465
Inquiry
466
done

FIG. 23

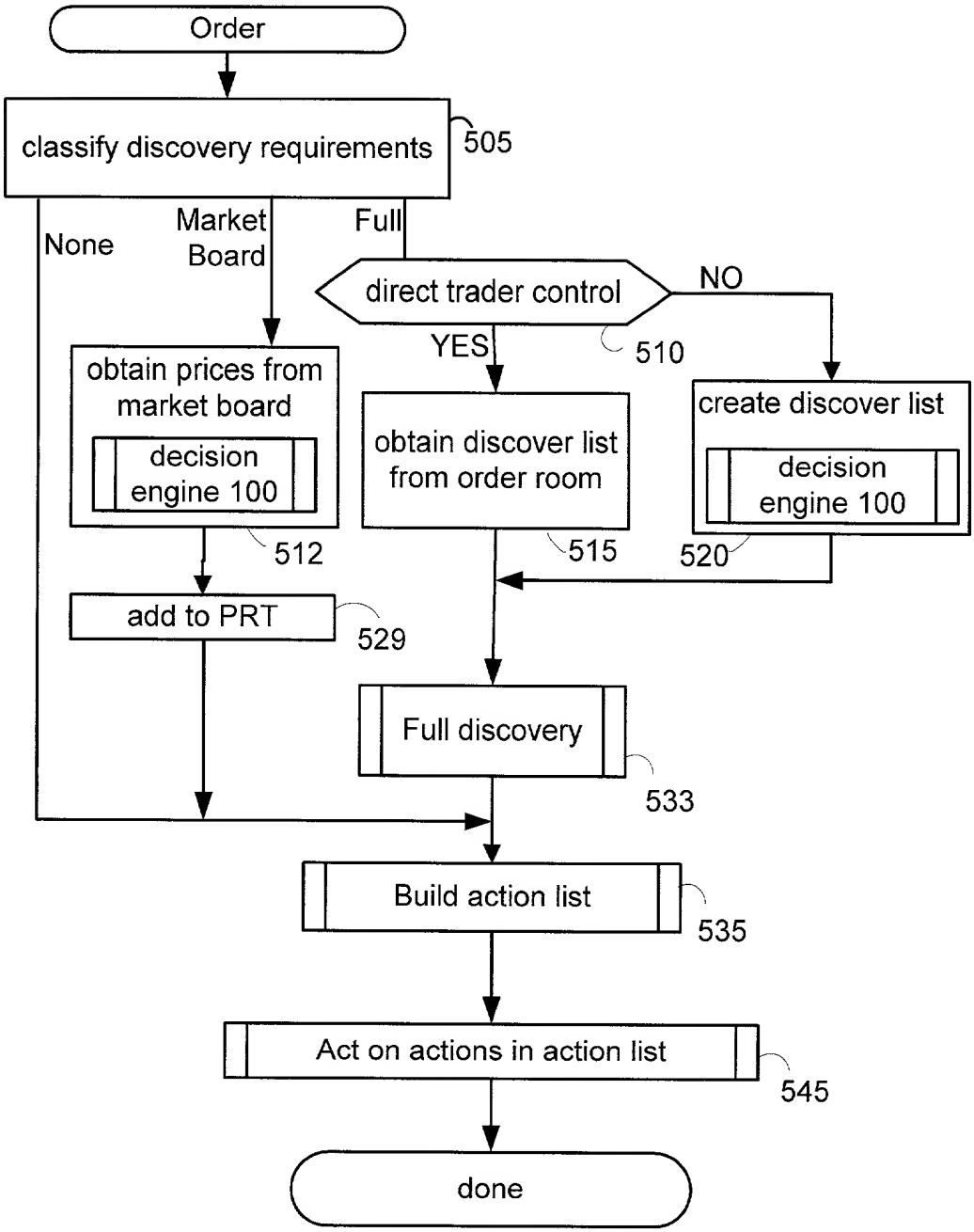
Order
classify discovery requirements
505
None
Market Board
Full
direct trader control
NO
YES
510
obtain prices from market board
decision engine 100
512
obtain discover list from order room
515
create discover list
decision engine 100
520
add to PRT
529
Full discovery
533
Build action list
535
Act on actions in action list
545
done

FIG. 24

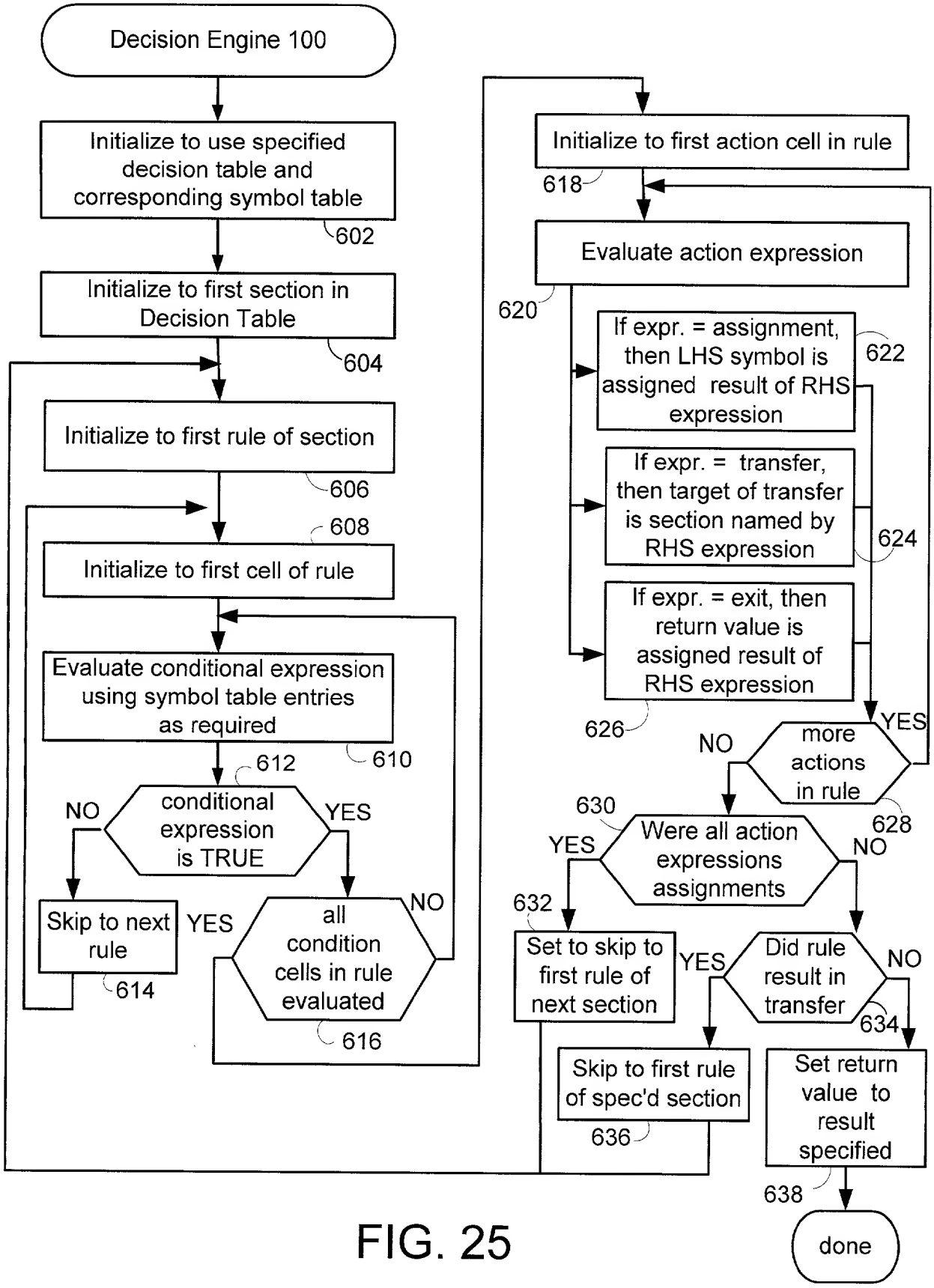
Decision Engine 100
Initialize to use specified decision table and corresponding symbol table
602
Initialize to first section in Decision Table
604
Initialize to first rule of section
606
608
Initialize to first cell of rule
Evaluate conditional expression using symbol table entries as required
610
612
conditional expression is TRUE
NO
YES
Skip to next rule
614
YES
all condition cells in rule evaluated
NO
616
Initialize to first action cell in rule
618
Evaluate action expression
620
If expr. = assignment, then LHS symbol is assigned result of RHS expression
622
If expr. = transfer, then target of transfer is section named by RHS expression
624
If expr. = exit, then return value is assigned result of RHS expression
626
more actions in rule
YES
NO
628
630
Were all action expressions assignments
YES
NO
632
Set to skip to first rule of next section
Did rule result in transfer
YES
NO
634
Skip to first rule of spec'd section
636
Set return value to result specified
638
done

FIG. 25

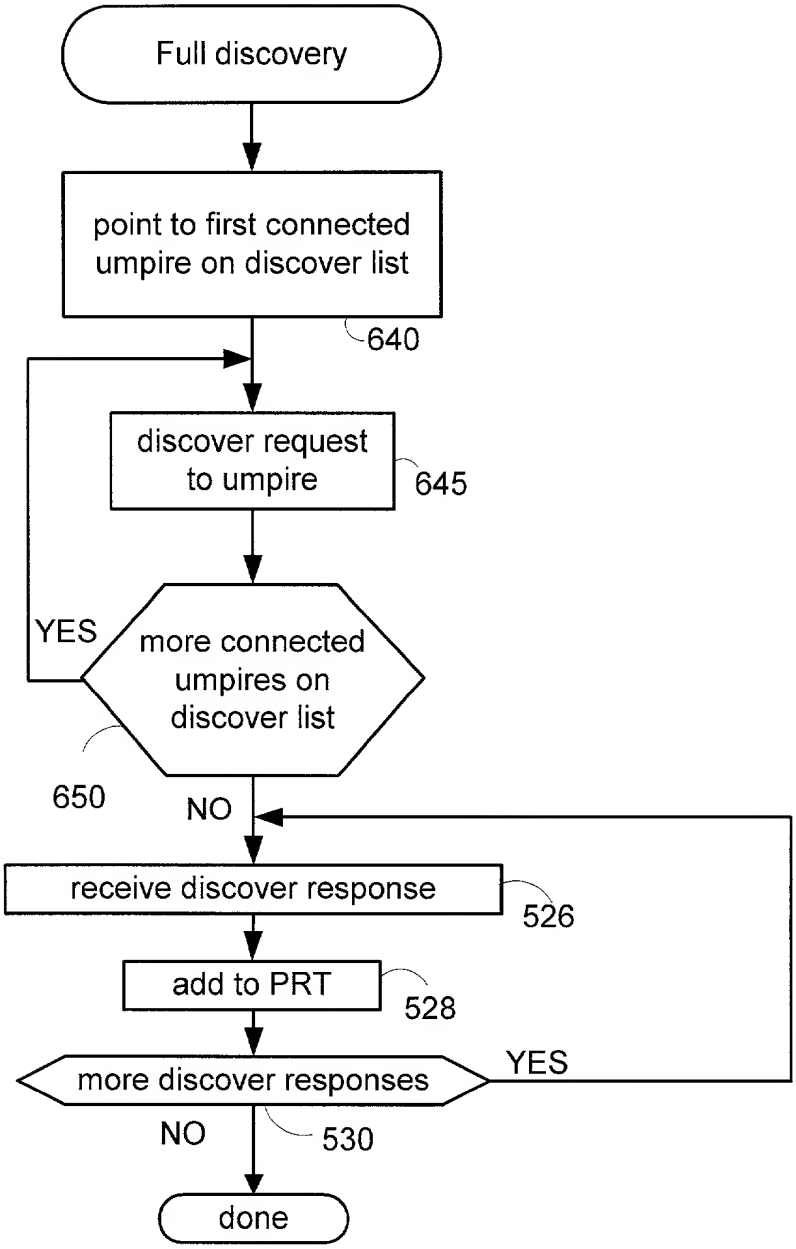
Full discovery
point to first connected umpire on discover list
640
discover request to umpire
645
YES
more connected umpires on discover list
650
NO
receive discover response
526
add to PRT
528
more discover responses
YES
NO
530
done

FIG. 26